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Five Lessons from the Covid Inflation

By John Greenwood

Overview

- The past five years – 2020-24 inclusive – have provided a valuable natural experiment in economics: a roller coaster in both money growth and inflation.
- Excess broad monetary growth in 2020-22 promoted by central banks deploying their balance sheets – i.e., using QE – was responsible for the inflation of 2021-2024.
- However, since early 2022 central banks have abruptly shifted from creating excess money growth to the opposite – too little broad money growth. Rapid contractions in the size of central bank balance sheets have reduced the stock of broad money in the US, UK, and the eurozone.
- Far from threatening a new "high-inflation regime", current developments – notably declines in broad money growth – will, if continued, result in sub-target inflation or even periods of deflation in 2025-26, with lower rates.
- The best way to ensure avoiding this roller coaster in future is to eliminate the wide fluctuations of broad money growth that central banks have promoted.
- Monetary policy communication and forecasting could be enhanced by focusing on the quantitative dimension of monetary policy, not only on interest rates and credit conditions.
- Central banks - and the BIS - ignored both the massive over-expansion of money in 2020-22 and the excessive contraction in 2022-23. As a result, they failed to forecast either the inflation or its rapid decline. Timely forecasts and warnings came only from those monetary economists who paid attention to the acceleration and deceleration of monetary growth.
- Emerging markets demonstrate that the monetary lessons of the Covid period apply to both developed economies ***and*** emerging economies. Excess money has the same effects in developed economies as in emerging economies. By contrast, those like China and India which did not preside over any significant monetary acceleration have not experienced any substantial rise in inflation.

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The IMM Newsletter offers economic research written by John Greenwood, founder and Chief Economist of International Monetary Monitor. A pioneer of monetary research in Asia, John was also the publisher, editor and lead author of ***Asian Monetary Monitor****, a bi-monthly publication that he operated for 20 years from Hong Kong between 1977 and 1996. From 1999 to 2021 he was Chief Economist at Invesco, based in London.*
To access my research please email your request to IMM@eri-c.com

Introduction: The Lessons of Covid for Macroeconomic Policy

The past five years – 2020-24 inclusive – have provided a valuable natural experiment in economics. On the one hand, global developments, starting with the outbreak of the Covid-19 pandemic followed by dramatic expansions of monetary and fiscal policies, combined to produce a roller coaster of inflation in many economies. But equally, there have been some economies where there has been no such roller coaster. What explains the roller coaster in some economies but not in others?

To kick-start the analysis, it is convenient to use the text of the 2024 Annual Economic Report of the Bank for International Settlements (BIS) in Basle – a bank for central banks – published on June 30th, 2024.[1] The Financial Times columnist Chris Giles conveniently summarised key parts of the BIS report in an article on July 2nd, "Central Banks: Smart or Lucky,": "*There were five lessons highlighted by [BIS] leaders Agustín Carstens, Claudio Borio, Andréa Maechler and Hyun Song Shin.*

- *Forceful monetary tightening can prevent inflation from transitioning from something no one needs to worry about to a high-inflation regime that annoys everyone*
- *The deployment of the central bank balance sheet can stabilise the financial system at times of stress and prevent the economy from falling into a tailspin*
- *But there are limits to prolonged monetary easing with diminishing returns and unwelcome side-effects*
- *Monetary policy communication is tough, especially when central banks have lots of tools, their forecasts have failed and people expect officials to do better*
- *Emerging economies have shown the benefits of foreign exchange intervention to ease trade-offs between price and financial stability*"

The problem with these five lessons from the BIS is that they **simply do not pinpoint either the source of or the solution to the 2021-24 inflation**. Monetary analysis offers both a far clearer identification of the problem and a better, clearer vision of what lies ahead. Here is an alternative, monetarist set of bullet points:

- Excessive broad monetary growth in 2020-22 promoted by central banks deploying their balance sheets – i.e., using QE – in the name of ensuring "smooth market functioning" of government bond and credit markets was responsible for the inflation of 2021-2024. To avoid transitioning to "a high inflation regime" only requires a return to pre-2020 rates of broad monetary growth.
- However, since early 2022 central banks have abruptly shifted from creating excess money growth to the opposite – too little broad money growth. Rapid contractions in the size of central bank balance sheets have been reducing the stock of money held by the public at large in the US, UK and the

[1] BIS Annual Economic Report 2024, Annual Economic Report 2024 (bis.org)

eurozone. Far from threatening a new "high-inflation regime", the shrinkage of central bank balance sheets and hence steep declines in broad money growth, if continued, threaten to result in sub-target inflation or even periods of deflation in 2025-26.

- The best way to ensure the avoidance of "prolonged monetary easing" (or the reverse) is to eliminate wide fluctuations of broad money growth.
- Monetary policy communication and forecasting could be enhanced by focusing on the quantitative dimension of monetary policy, not only on interest rates and credit conditions. Central banks – and the BIS – ignored both the massive over-expansion of money in 2020-22 and the excessive contraction in 2022-23. As a result, they failed to forecast either the inflation or its rapid decline. Timely forecasts and warnings came only from monetary economists who paid attention to the acceleration and deceleration of monetary growth.
- Emerging markets demonstrate that the monetary lessons of the Covid period apply to both developed economies and also to emerging economies. Excess money has the same effects in developed economies as in emerging economies. Those like Brazil and Egypt which allowed big increases in money growth have suffered predictable increases in inflation.[2] By contrast, those like China and India which did not preside over any significant monetary acceleration have not experienced any substantial rise in inflation.[3]

Where there has been a roller coaster of money growth, a roller coaster of inflation has followed. Where there has been no roller coaster of money growth, inflation has remained subdued and stable. The remainder of this paper uses monetary and price data in tabular and graphic form to summarise the evidence for a monetarist interpretation as opposed to the BIS/central bank/consensus interpretation.

Section 1. The Consistency of the Lag in Effect of Monetary Growth

On numerous occasions during the Covid crisis I was asked whether the lag between monetary/fiscal stimulus and its effect on economic activity or inflation had shortened. A widely promoted view, for example, was that fiscal stimulus, if administered through hand-outs to households, had its impact more quickly than interest rate cuts or government-led capital expenditure programmes. In my responses I remained highly sceptical, pointing out that such analysis only took account of the "first round effect" of spending and ignored the greater impact of excess money remaining in the economy after the initial effects had dissipated.

[2] M4 in Brazil increased from 8.1% year-on-year in March 2020 to 18.1% in March 2021; the IPCA index of inflation increased from 3.3% in March 2020 to 12.1% by April 2022. In Egypt, M2 increased from 14.8% in March 2020 to 31.5% by February 2023; inflation increased from 5.1% in March 2020 to 38% by September 2023.

[3] In China, M2 increased from 8.7% in February 2020 to 11.1% by June 2020 but had slowed again to 8.4% by November 2021. CPI inflation ***declined*** from 5.2% in February 2020 to 0.9% in February 2022 and was 0.3% in May 2024. In India, M3 increased only slightly from 10.1% in March 2020 to 12.7% by August 2020 but had decelerated to 8.4% by July 2022. CPI inflation was 5.8% in March 2020, and little changed at 6.1% in February 2022.

A key take-away is that it is almost invariably better to monitor changes in the quantity of broad money over a sustained period for a guide to the amount of stimulus or squeeze imposed upon an economy. In that spirit I have compiled Table 1 to assess the consistency of the lag in effect of money growth on inflation.

The table consists of several colour-coded groups of economies: developed and emerging, and a mix of economies – some that suffered higher inflation versus several economies where inflation remained subdued.

In the table and in all the charts that follow I have used an easily accessible, official measure of broad money for each economy, and the CPI or HICP as a similarly accessible measure of inflation. **Further, I decided to measure each series with the 12-month moving average of the year-on-year percentage rate of change.** The reason for adopting this metric is, first, that inflation famously lags behind changes in money growth by a "long and variable" amount, and second, because this metric comes close to replicating the typical effect of money on prices – that is, the effect of excess money is delayed but it builds up gradually over time and is spread out across varying categories of goods and services depending on the circumstances, but ultimately across all categories.

Above all, we are interested in tracking changes in the ***overall price*** level due to prior changes in money growth, not changes in ***relative prices*** (such as energy or food prices) that may have temporary, knock-on effects on the overall price index due to their weighting in the total index.[4] The overall price level can only be sustained if prior money growth enables it to remain elevated. If the overall inflation came from "shocks" to relative prices, the ***overall price level*** would have declined as the shocks dissipated. Clearly, this did not happen.

[4] One much-cited report that makes the case for relative prices being the source of overall inflation is *"Geneva 26: The Art and Science of Patience: Relative prices and inflation."* Geneva 26: The Art and Science of Patience: Relative prices and inflation | CEPR The authors argue: "Following more than thirty years of low inflation, advanced economies saw a surge in inflation driven by an unprecedented concomitance of factors linked to the Covid-19 pandemic and the Russian invasion of Ukraine. Central banks around the globe have responded with a sharp tightening of monetary policy. The debate over the drivers of elevated core inflation can be split into two broad interpretations: (i) de-anchoring of inflation expectations and a possible profit and wage spiral, which calls for a tighter monetary policy stance; or (ii) a reflection of the relative price adjustments needed for efficient resource reallocation in response to a series of asymmetric shocks, suggesting a more accommodative stance is desirable." In my view this is a classic whitewash of central banks' responsibility for the recent inflation.

Table 1. Consistent Lags between Broad Money Growth and Inflation

Rates of change are 12-month moving averages of percentage year-on-year changes.

BROAD MONEY GROWTH RATES & INFLATION, 2020-2024							
Economy and chosen broad money aggregate (1)	Pre-Covid Broad Money Growth Feb 2020 (2)	**Peak Broad Money Growth** (3)	Date of peak money growth (4)	Pre-Covid CPI Inflation Rate Feb 2020 (5)	**Peak CPI Inflation Rate** (6)	Date of peak inflation Rate (7)	Time lag between peak money growth and peak inflation (8)
US M2	5.5%	23.5%	Apr 2021	2.0%	8.1%	Nov 2022	19 months
UK M4x	3.3%	12.7%	Apr 2021	1.8%	10.0%	March 2023	23 months
Eurozone M3	5.4%	9.9%	Apr 2021	1.8%	8.9%	Feb 2023	22 months
Canada M3	8.1%	13.4%	Feb 2021	2.1%	6.9%	Jan 2023	23 months
Australia M3	2.9%	11.0%	Mar 2021	1.8%	7.1%	Q1 2023	24 months
N. Zealand M3	5.5%	10.6%	Mar 2021	1.9%	7.2%	Q4 2022	21 months
Sweden M3	6.4%	16.0%	Apr 2021	1.7%	10.7%	Jul 2023	27 months
Denmark M3	0.0%	9.4%	Apr 2021	0.7%	8.3%	Mar 2023	23 months
Japan M2	2.4%	8.8%	May 2021	0.6%	3.5%	Sep 2023	28 months
Switzerland M3	2.3%	5.2%	June 2021	0.3%	3.1%	Apr 2023	22 months
China M2	8.4%	10.5%	Feb 2021	3.5%	2.1%	Feb 2023	24 months
India M3	10.2%	12.2%	Apr 2021	4.5%	6.8%	Feb 2023	22 months
Thailand M3	4.3%	10.0%	Feb 2021	0.8%	6.2%	Jan 2023	23 months
Malaysia M3	4.4%	5.3% *(6.3% Oct2022)*	Mar2021	1.0%	3.8%	Apr 2023	25 months
Indonesia M3	7.1%	11.3% *(11.6% Sep2022)*	Feb 2021	2.8%	5.0%	May 2023	27 months *(8months)*
Philippines M3	8.3%	13.0%	Nov 2020	2.2%	7.3%	May 2023	30 months

Brazil M4	7.2%	16.2%	May 2021	3.8%	10.8%	Jul 2022	14 months
Mexico M4	6.6%	9.4%	Mar 2021	3.5%	8.0%	Feb 2023	23 months
Chile M3	11.0%	*10.9% (10.7%*	*Apr 2020 Jul 2022)*	2.8%	12.5%	Mar 2023	35 months *(8 months)*
Peru M2	10.2%	34.1%	Apr 2021	2.1%	8.5%	Mar 2023	23 months

Notes: The colour scheme relates to the groups of economies shown in Figures 1-2 and 4-6. Where two sets of growth rates or dates are given, a discretionary judgement must be made as to which is the more appropriate data to use (see charts and text below). Note that some countries (e.g., Australia and New Zealand) only report price data on a quarterly basis.

To summarise the contents of the table:

- Broad money growth rates before the outbreak of Covid (col. 2) were consistent with low and stable inflation (col 5).
- With two exceptions (the Philippines and Chile), the peak rates of growth of broad money (col 3) occurred in the first half of 2021 (col 4). In other words, all the inflations were ***preceded*** by surges of money growth, a fact not mentioned by studies such as *Geneva 26*. (See footnote 3.)
- Peak inflation rates (col 6) for those economies that had rapid money growth were substantially higher than their pre-Covid inflation rates, while for those economies that did ***not*** have rapid money growth (notably those shaded in green) inflation rates were little changed or only modestly higher than their pre-Covid inflation rates.
- With the sole exception of Brazil, the lag between the peak rates of growth of broad money and the peak rates of inflation (cols 7 & 8) ***ranged from 19 months to 35 months***. This finding is entirely consistent with findings by Milton Friedman and others that the lag between changes in money growth and changes in inflation is about two years, though with considerable variability. The lag in Brazil's case was just 14 months, probably reflecting the sensitivity of the population following past episodes of high inflation to any renewed outbreak.
- The data in the table does not report on the impact of monetary changes on real GDP – which was in any case complicated by the various shutdowns associated with the pandemic. However, the data clearly shows that the famous ***lag-in-effect*** between changes in monetary growth and changes in inflation ***has not diminished*** over the past six or seven decades when these findings were first reported by Milton Friedman, Anna Schwartz and others.

Section 2. Money and Inflation in the US, UK, Euro-area and Canada

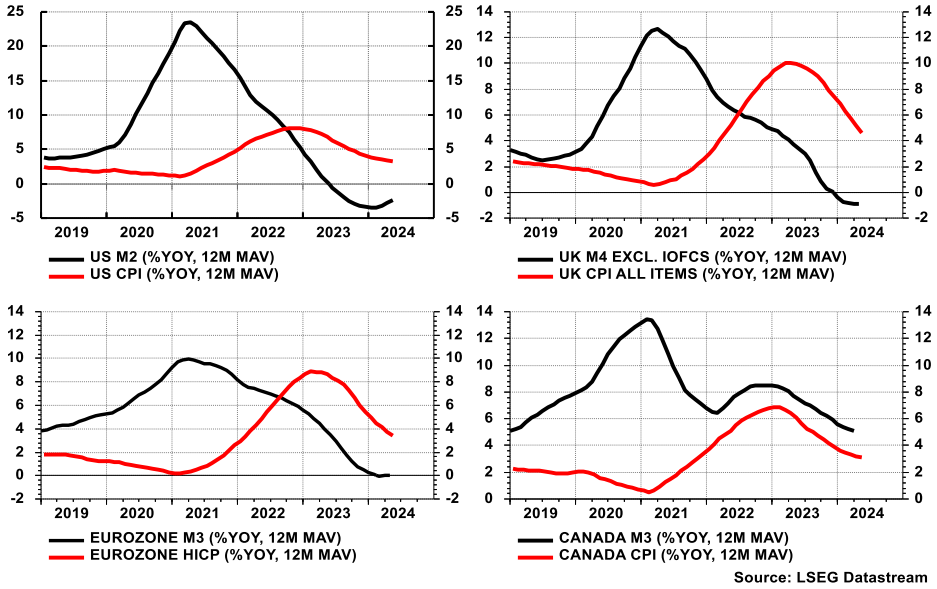
Figure 1 shows broad money and price data for the US, UK, eurozone and Canada. The central banks in all four started by cutting their policy lending rates almost to zero and followed with aggressive expansion of the central bank's balance sheet – either by purchasing securities and/or by lending to banks provided that the banks in turn lent to corporate borrowers (specified in some cases as medium and small

enterprises). The result in all four cases was a huge increase in the quantity of money, a fact that went unmentioned by the perpetrators in almost every case.

Figure 1. Inflation followed prior rapid money growth.

MONEY GROWTH & INFLATION, 2019-24

US, UK, EUROZONE, & CANADA



Source: LSEG Datastream

The central bankers ignored money because, relying on post-Keynesian and Phillips curve models, they had unwisely eliminated monetary aggregates from their toolkits – and from their dashboards – in the past two or three decades. Moreover, because three of the four central banks had conducted large-scale purchases of securities (or QE) following the GFC without creating inflation, they naively believed that they could do QE again without generating inflation. This proved to be a disastrous policy choice stemming directly from the foolish view that monetary policy can be conducted without considering money.

To understand why central bankers made this basic error one needs to understand how the central bankers thought QE operated and how QE operated in practice. The central bankers mostly thought that they were lowering rates along the length of the yield curve, and this would encourage borrowing and spending. In reality, by buying securities from non-banks they were injecting new money into the economy, boosting broad money at a time when banks were either shrinking their balance sheets or not lending because their balance sheets were impaired by the sub-prime crisis.

But since commercial bank balance sheets were so much larger than central bank balance sheets, it would have required a huge volume of QE to compensate for the withdrawal of commercial bank lending. The result was that even with substantial QE volumes, broad money growth remained anaemic and hence inflation remained low through the 2010s.

By contrast, in the Covid crisis banks had strong balance sheets and remained willing to lend. Therefore, when an even larger volume of QE was piled on banking systems that were already flush with capital and willing to lend, the result was excess broad money growth.

The four charts in Figure 1 show the big surge in broad money in each economy from the start of Covid in March 2020, followed just over a year later by a surge in inflation and almost exactly two years later by the peak of inflation. The magnitude of the inflation effect in each economy differed slightly depending on such factors as the underlying real GDP growth rate and the trend change of velocity (which are both variables in the equation of exchange), but the range of peak inflation rates turned out to be relatively narrow: from 6.9% in the case of Canada to 10.0% in the case of the UK (see Table 1, and note that these measures are all based on 12-month moving averages of year-on-year rates of change). Moreover, the lag in effect varied only from 19 to 23 months, confirming Friedman's long-standing observation that the typical lags between money and inflation were 18-24 months.

The important observation to make concerning the period ahead is that in 2023-24 broad money growth in the US, the UK and the eurozone has been too low to hit the target inflation rate. However, given the previous ***overshoot*** of money growth in 2020-2022, it is still possible that there is enough residual excess money in each system for inflation to remain close to target in 2024-25. But if money growth in these three economies remains as low as our moving averages currently show, then there is a significant risk that inflation will fall below target and there may even be periods of mild deflation in 2025-26.

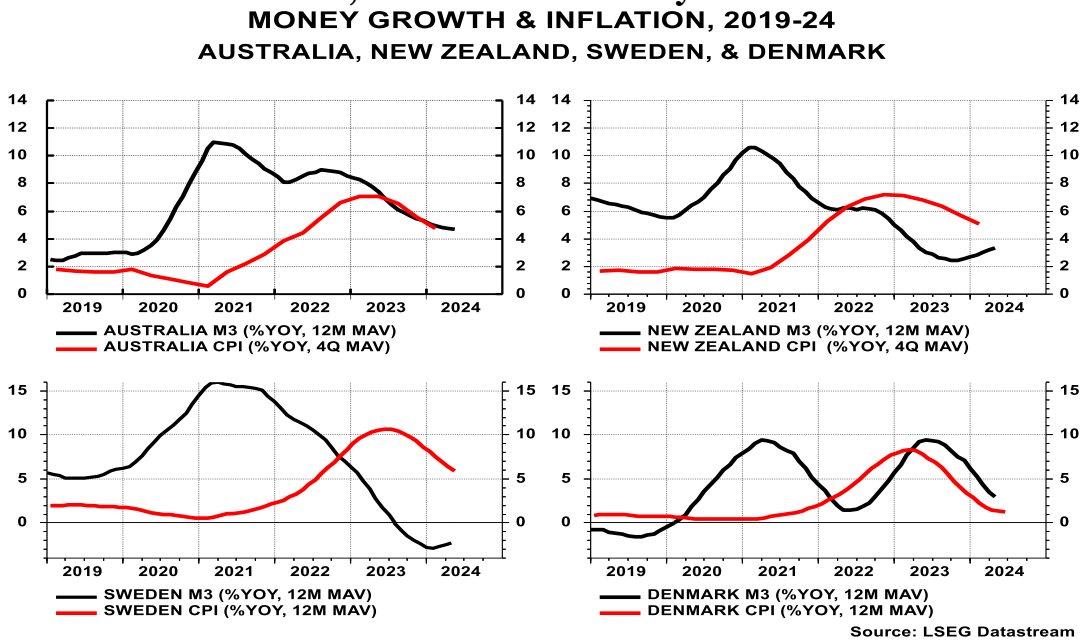
My forecast that, on the present trajectory of broad money growth, inflation in these three economies will undershoot the target, implies that all four central banks should now be cutting rates with a view to raising broad money growth rates. The Bank of Canada (June 5) and the ECB (July 4) have both cut rates recently, but the Fed and the Bank of England have yet to do so.

Section 3. Money and Inflation in Australia, New Zealand, Sweden and Denmark

As shown in Figure 2, in Australia and New Zealand, the scale of monetary expansions in 2020-22 were very similar, and subsequently in 2023-24 money growth in both economies has been on a broadly decelerating course. In both cases the expansion was based largely on the purchase of government bonds by the central bank (conducting QE), but both central banks are now reversing their earlier expansions doing QT (i.e., selling securities outright or allowing maturing securities to roll off their balance sheets). These operations tend to keep money growth very low because they require the private sector to acquire the government debt that was previously held by the central bank. Unless lending by private sector commercial banks is buoyant enough to offset the QT, money growth is liable to shrink.

In Sweden the story is the almost same as in Australia and New Zealand (see Figure 2). In 2020-21 the Swedish central bank added SKR 600 billion to its balance sheet by purchasing securities and is now in the process of disposing of that stockpile. From a level of nearly SKR1.6 trillion at the peak in 2022-23, the Sveriges Bank's balance sheet had contracted to SKR 1.23 trillion by June 2024. As can be deduced very clearly from Figure 2, this has put strong downward pressure on the balance sheets of the commercial banks and hence on the broad money supply, M3, which has been declining in absolute terms since August 2022.

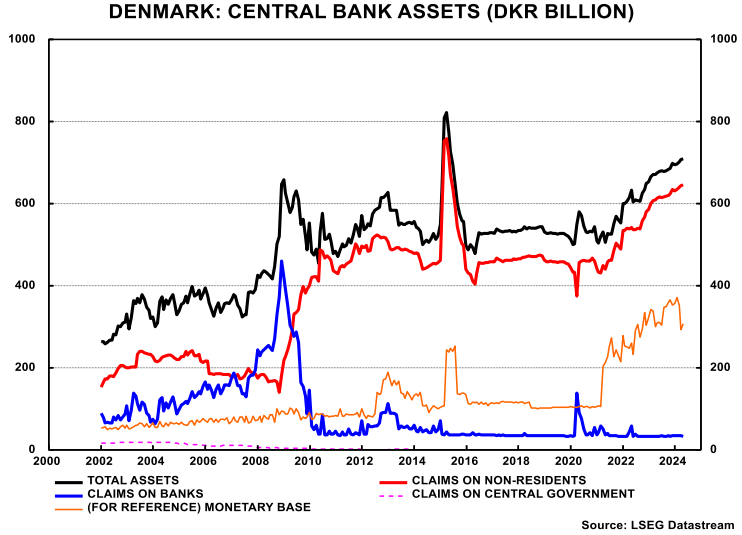
Figure 2. Lower Money Growth in Australia, New Zealand and Sweden Indicate Lower Inflation, but Denmark Likely to See a Rebound.



In contrast to the central banks of Australia, New Zealand and Sweden, the Danish central bank started expanding its balance sheet as late as mid-2021 – mainly by acquiring foreign (euro-denominated) assets (as the Swiss National Bank does when it seeks to implement a QE-type operation). In contrast to these other three, the Danmarks Nationalbank has not reduced the size of its balance sheet. As a consequence, M3 growth has re-accelerated, rising from 1.4% in June 2022 (on our smoothed metric) to 9.4% in June 2023, but has subsequently slowed again to 3.0% in May 2024.

For the present the inflation rate in all four economies continues on a downward course, reflecting the monetary slowdowns of 2022-24 in the cases of Australia, New Zealand and Sweden, and 2021-22 in the case of Denmark. However, it seems most likely that Denmark will see a mild upswing of inflation before the other three based on the re-acceleration of Danish M3 in 2022-23. However, such secondary upticks in inflation are inherently more difficult to forecast because the economy and inflation are both reacting to two successive upswings and downswings of money growth whose effects may overlap. Given the typical 2-year lags between money and inflation, it is entirely possible that the normal impact(s) will be obscured, absorbed, or lost within subsequent shifts of money growth.

Figure 3. To do QE, the Danish Central Bank Purchased Foreign Assets.



Section 4. The Low Inflation Economies: Japan, Switzerland, China & India.

Initially, when Covid struck in March 2020, a chorus of central bankers and consensus economists told us that the outlook was for a prolonged recession with the potential for deflation and economic "scarring", by which was meant high levels of unused capacity and high unemployment. Instead, when prices started rising rapidly in the spring of 2021 and the demand for labour was proving to be very strong, they told us the inflation was "transitory," implying it would soon be reversed and the central banks did not need to do anything about it. By November 2021 that theory was looking threadbare, and Fed Chair Jay Powell gave the order to cease using the term transitory. Inflation, according to the subsequently revised consensus, was a result of "asymmetric shocks" and the disruption of supply chains.

All such consensus theorising looked foolish and even vacuous from the viewpoint of anyone who has studied the quantity theory of money. From MV=PY one can easily see that, assuming either some stability in V (velocity), or merely a tendency for V to return to its trend after a major disturbance, a big increase in M (money) combined with a significant decrease in Y (a decline in GDP due to the lockdowns) must result in a substantial rise in P, or the overall price level.

But it is not necessary to resort to elaborate theories to come to a conclusion about which policy worked better. Simply compare those economies that did ***not*** respond to Covid by instigating huge increases in the size of their central bank balance sheets and broad money with those in Figures 1 or 2 that did. There cannot be any doubt about the conclusion.

Figure 4 provides such a comparison. In general terms, Japan, Switzerland, China and India did not allow or encourage any very significant surge in broad money growth in response to the Covid threat to their economies. With some qualifications (see below), their central banks did not engage in sudden, large-scale asset purchases

but instead broadly maintained moderate rates of money growth which, two years later, generated minimal inflation.

The response by these four central banks explodes the absurdity of the consensus "theory" that changes in ***relative prices*** – due to a shift in demand from goods to services or supply chain disruptions or shifts in the terms of trade – could somehow generate a sustained increase in the ***overall price level***.

Figure 4. Minimal Monetary Acceleration during Covid Generated Minimal Inflation for Japan, Switzerland, China and India.

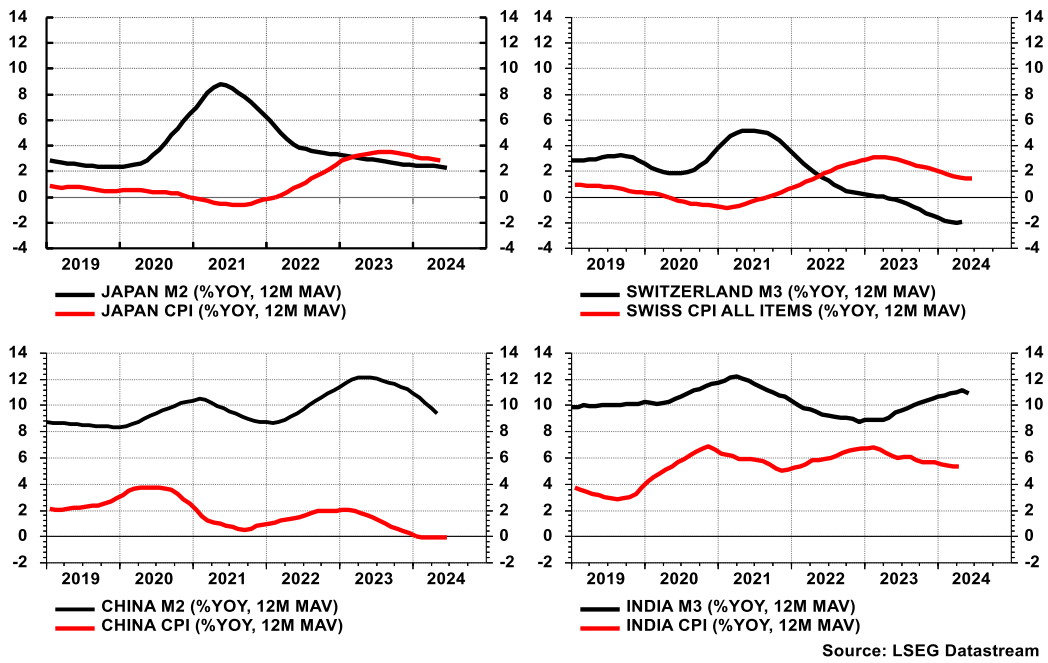


Figure 4 shows four economies that engaged in minimal QE or central bank balance sheet expansion during the Covid period – two developed and two emerging. In the cases of Japan and Switzerland inflation rose from negligible to close to 4%, while in China inflation declined and in India it remained stable around 6% (all measured on the basis of our 12-month moving average of the year-on-year rate of change). Since all four economies experienced the same supply chain disruptions and similar shocks to food and fuel prices as the high inflation economies in Figures 1 & 2, how was this possible? Yet the consensus narrative has constructed a story that claims that supply chain disruptions and asymmetric shocks were enough elsewhere to produce generalised inflation.

The answer is that in all four economies, broad money growth remained subdued (Japan) or stable (China and India) or low (Switzerland).

In Japan's case, the Bank of Japan (BOJ) had been conducting "QQE" since 2013, but because the BOJ's purchases of securities were from banks instead of non-banks, the QQE had no traction – the rate of broad money growth remained low. On the eve of

Covid in February 2020, M2 growth was 2.4% and headline CPI inflation was 0.5%. During Covid the BOJ introduced a lending programme modelled on the Bank of England's Funding for Lending scheme which enabled it to lend money to banks provided the funds were passed on to corporate and especially SME borrowers. Commercial bank lending picked up, producing a similar uptick in M2 growth, which peaked at 8.8% (on our smoothed measure) in May 2021. Just over two years later, in August 2023, CPI inflation hit 3.5% (again on our smoothed measure). In effect, after years of pretence that QQE and negative rates would work to boost inflation, a brief period of increased M2 growth resulting from BOJ and commercial bank lending led directly to inflation – exactly as one would expect from monetary analysis.

The current situation is that BOJ lending has ended, M2 growth has reverted to 2.3% in June 2024, and – in my view – inflation will return to its pre-Covid rate of 0.5% or less from its current 2.9% (in May 2024). All the BOJ talk about higher wages possibly boosting inflation is absurd – a bit like claiming that wet streets could be the cause of rain. Wage rises are a manifestation of inflation. Fundamentally the BOJ needs to ensure 5% M2 growth to restore 2% inflation.

In the case of Switzerland, a brief upswing in M3 growth to 5.2% in June 2021 led to a 3.1% peak of CPI inflation in March 2023 (again on our smoothed measures). But with M3 growth down to -2.0% in April 2024, inflation is likely to tumble over the next two years, probably falling into deflationary territory in 2025-26.

China and India offer variations of the same theme: roughly **stable broad money growth** producing low and stable inflation despite the disruptions due to Covid. However, because (a) the underlying growth rates of each economy are high (about 5% and 6% respectively); (b) the trends of velocity (i.e. money balance accumulation) are relatively high in absolute terms (-2.9% p.a. and -1.6% p.a.); and (c) the inflation targets are higher (3% and 4% respectively), the required broad money growth rates are substantially higher (10.9% and 11.6%) than normally required in developed economies.

In China's case M2 accelerated from 8.4% in February 2020 to just 10.5% in February 2021, barely enough to register as a substantial change. By February 2022 M2 growth had slowed to 8.7%, but it accelerated to 12.1% by April and May 2023, reverting to 9.4% in April 2024. Even so, because the M2 growth rate required to hit the 3% inflation target is close to 11%, inflation remained negligible, falling from 3.7% in mid-2020 to 0.5% in September 2021, rising briefly to 2.1% in January 2023 and falling back to 0% for the early months of 2024. While the month-to-month movements are dominated by relative price changes (such as the price of pork and the price of fuels), China's low overall average inflation is driven ***by relatively low and stable broad money growth.***

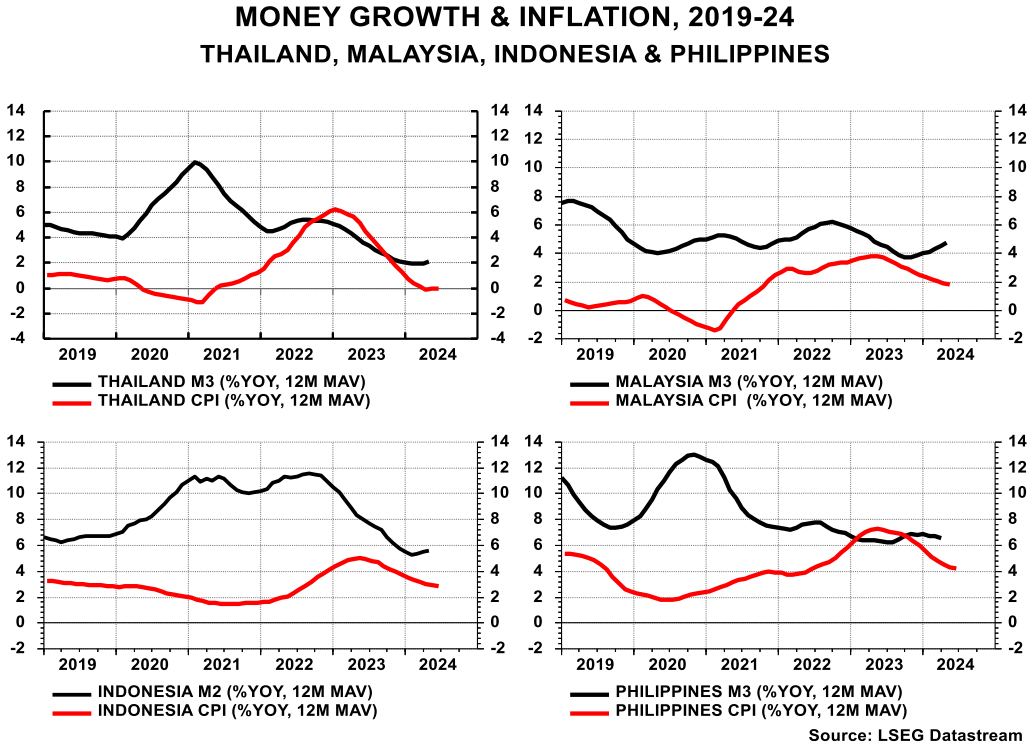
The case of India is similar. At the onset of Covid in February 2020 M3 growth was 10.2% and CPI inflation was 4.5% (on our smoothed basis). M3 growth had accelerated modestly to 12.2% by April 2021, subsequently slowing to 8.9% in the months January-April 2023, before creeping back up to 10.9% in June 2024.

Compared to developed western economies, India's money growth has been stable.

Indian inflation increased from 4.5% by just 2.4 percentage points to 6.9% by November 2020 and has subsequently remained stable in the range 5.0% to 6.8%. Although inflation has been mildly above target, it has not been egregiously so. As in China, month-to-month changes are dominated by relative price changes (such as the price of pulses and other food staples affected by monsoon conditions and the price of fuels), but India's stable overall average inflation is driven ***by relatively low and stable broad money growth.***

Section 5. Moderate Inflation in the ASEAN region: Thailand, Malaysia, Indonesia and the Philippines.

Figure 5. Modest Increases in Money Growth have Produced only Modest Increases in Inflation.



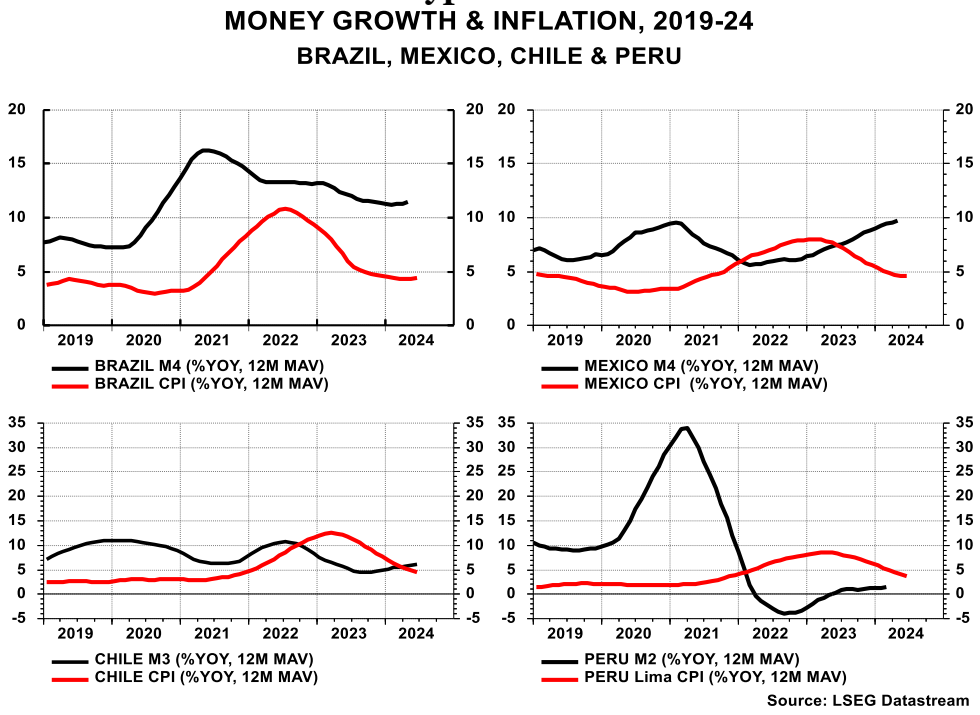
In the ASEAN region, the roller coaster phenomenon in money and inflation is evident but far less pronounced than in the developed economies discussed in Figures 1 & 2. Following relatively small increases in money growth in Thailand, Indonesia, and the Philippines, inflation picked up modestly in 2022-23, rising to 6.2% in January 2023 in Thailand, 5.0% in May 2023 in Indonesia, and 7.3% in May 2023 in the Philippines.

In ASEAN, Malaysia is the exceptional case. There was no significant acceleration of M3 growth in response to Covid. M3 growth in February 2020 was 4.4% (after 7.7% in February 2019), rising to a peak of only 6.3% only in October 2022, before falling back to 3.7% in November 2023. For the entire period, 2019-2024 M3 growth has

averaged 5.2% p.a. CPI inflation declined in 2020 and in the first few months of 2021 as it did in most other economies reflecting the temporary effects of the lockdowns on aggregate demand, but then recovered to peak at 3.8% in April/May 2023. More recently it has declined to 1.8% in May 2024. All in all, Malaysia escaped the roller coaster of money and inflation, and Bank Negara Malaysia (the central bank) has shown that **low and stable money growth produces low and stable inflation**.

Section 6. Money Growth and Inflation in Latin America.

Figure 6. A Variety of Latin Ameran Experiences Support the Monetary Hypothesis.



The monetary and inflation experiences of Brazil, Mexico, Chile and Peru in the pandemic are a mixed bag, with first three cases clearly supporting a monetarist interpretation, while Peru appears more ambiguous.

The case of Brazil is a classic roller coaster. The rate of growth of M4 more than doubled from 7.2% growth in February 2020 to a peak of 16.3% in May 2021. Inflation followed just over a year later, rising threefold from 3.3% in February 2020 to a peak of 10.8% in July 2022. Subsequently, M4 growth slowed gradually to 11.5% in May 2024 (roughly half of its prior acceleration), but inflation came down somewhat more quickly, falling to 4.4% by June 2024.

Mexico is a less dramatic case, but nonetheless one which conforms to the monetary profile of M4 growth leading inflation both on the upside and on the downside. M4 growth accelerated from 6.6% in February 2020 to 9.4% by March 2021, and then

slowed to 5.6% in March 2022, staying at roughly this rate of growth for the rest of the year. CPI inflation followed, first rising from 3.5% in February 2020 to 8.0% by February 2023, and subsequently slowing to 4.6% in June 2024, two years after the M4 slowdown.

In 2023-24 M4 growth has picked up mildly, rising to 9.7% by May 2024, but it is still too early to have seen any rise in inflation as a result of this monetary boost.

Chile appears similar to the case of Malaysia discussed above. With no upswing in M3 growth in 2020 or 2021, and only a reversion to the growth rate of 2020 in 2022, M4 growth averaged 8.1% p.a. throughout the period 2019-24. There was no upturn in Chile's inflation until 2022-23 when CPI inflation increased from 3.0% in June 2021 to 12.4% by April 2023, largely reflecting higher import prices (especially oil and gas). Since then, inflation has fallen back to 4.6% in June 2024.

Finally, the case of Peru shows a steep roller coaster for money growth but a much less pronounced movement in inflation. Peru's M2 climbed from 10.2% in February 2020 to as high as 34.1% by April 2021, but the CPI inflation rate for the capital, Lima, only increased from 2.1% in February 2020 to 8.4% in March and April 2023.

On the downside, M2 plunged from 34.1% to -3.9% in September/October 2022 and has since recovered to a low 1.5% in March 2024. It is possible that the steepness of the decline in M2 has supressed some of the previous inflationary impulse from the earlier surge in money growth (as may have occurred in the US), but final conclusions will have to await further research.

Summary and Investment Conclusions

- The past five years – 2020-24 inclusive – have provided a valuable natural experiment in economics: a roller coaster in both money growth and inflation.
- Excess broad monetary growth in 2020-22 promoted by central banks deploying their balance sheets – i.e., using QE and lending programmes – was responsible for the inflation of 2021-2024.
- However, since early 2022 central banks have abruptly shifted from creating excess money growth to the opposite – too little broad money growth. Rapid contractions in the size of central bank balance sheets have reduced the stock of broad money in the US, UK, and the eurozone.
- Far from threatening a new "high-inflation regime", current developments – notably declines in broad money growth – will, if continued, result in sub-target inflation or even periods of deflation in 2025-26.
- The best way to ensure avoiding this roller coaster in future is to eliminate the wide fluctuations of broad money growth that central banks have promoted.
- Monetary policy communication and forecasting could be enhanced by focusing on the quantitative dimension of monetary policy, particularly broad money growth, not only on interest rates, credit conditions, or Financial Conditions Indicators (FCIs).
- Central banks - and the BIS - ignored both the massive over-expansion of money in 2020-22 and the excessive contraction in 2022-23. As a result, they

failed to forecast either the inflation or its rapid decline. Early forecasts and warnings came only from those monetary economists who paid attention to the acceleration and deceleration of monetary growth.

- Emerging markets demonstrate that the monetary lessons of the Covid period apply to both developed economies ***and*** emerging economies. Excess money has the same effects in developed economies as in emerging economies.
- By contrast, Japan and Switzerland among developed economies and China and India among emerging economies did not preside over any significant monetary acceleration and have therefore not experienced any substantial rise in inflation.
- Looking forward, the consensus view that the world is facing an era of "higher for longer" inflation and interest rates appears, from a monetarist viewpoint, to be completely at odds with the facts around the world.
- The monetary growth data suggest that, far from rates needing to rise or stay high to deal with the inflationary aftermath of policy mistakes in 2020-22, inflation and interest rates are likely to fall continuously over the next two years.
- On the current course of monetary growth, in several of the leading economies (such as the US, UK, the euro area, Japan, and China) it is likely that there will be sub-target inflation in 2025-26, interspersed with periods of deflation.
- The investment implications are that the current easy conditions for bond and equity markets will give way to tighter credit conditions. Even if interest rates are lower in nominal terms, they may be higher in real terms.
